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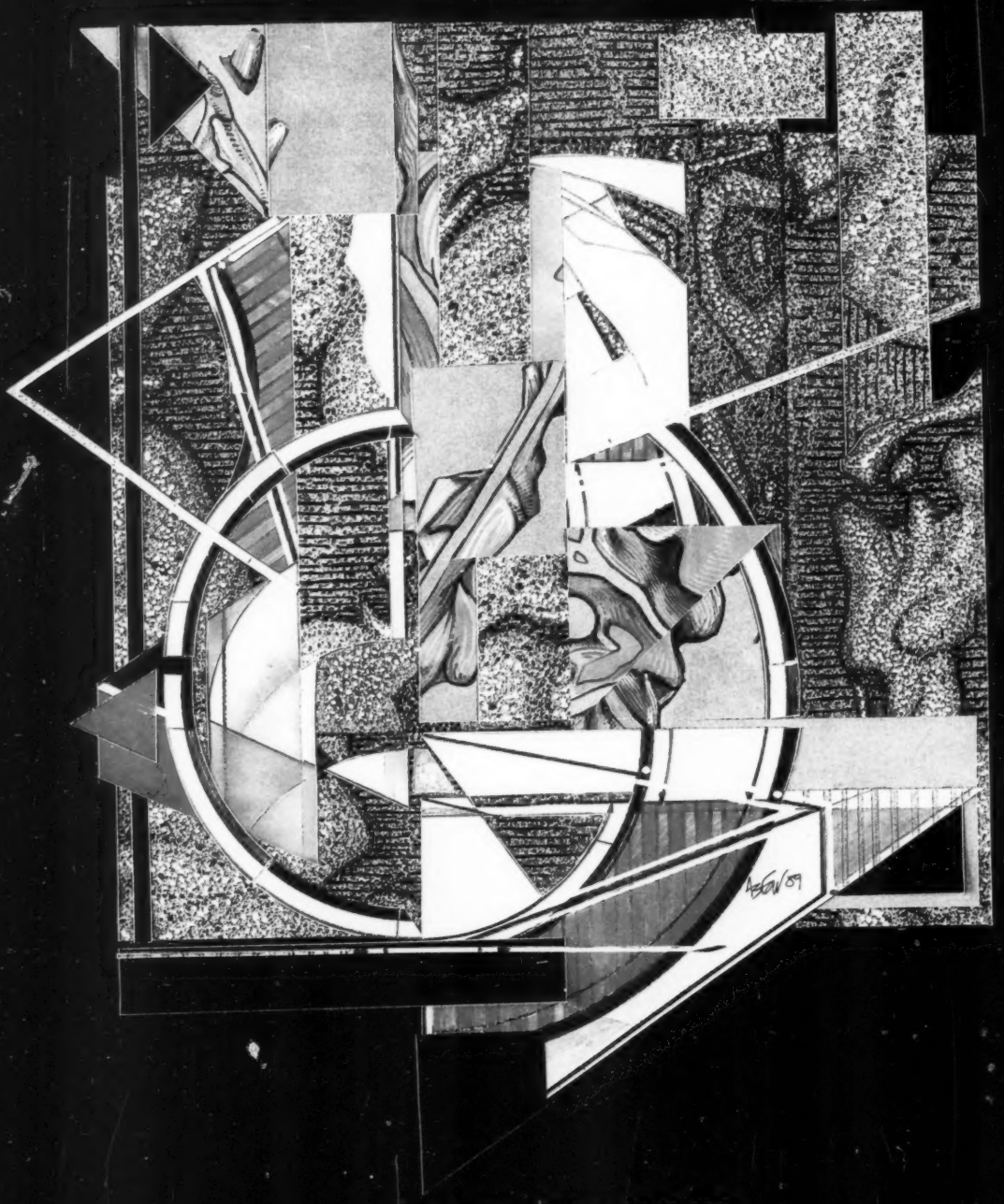

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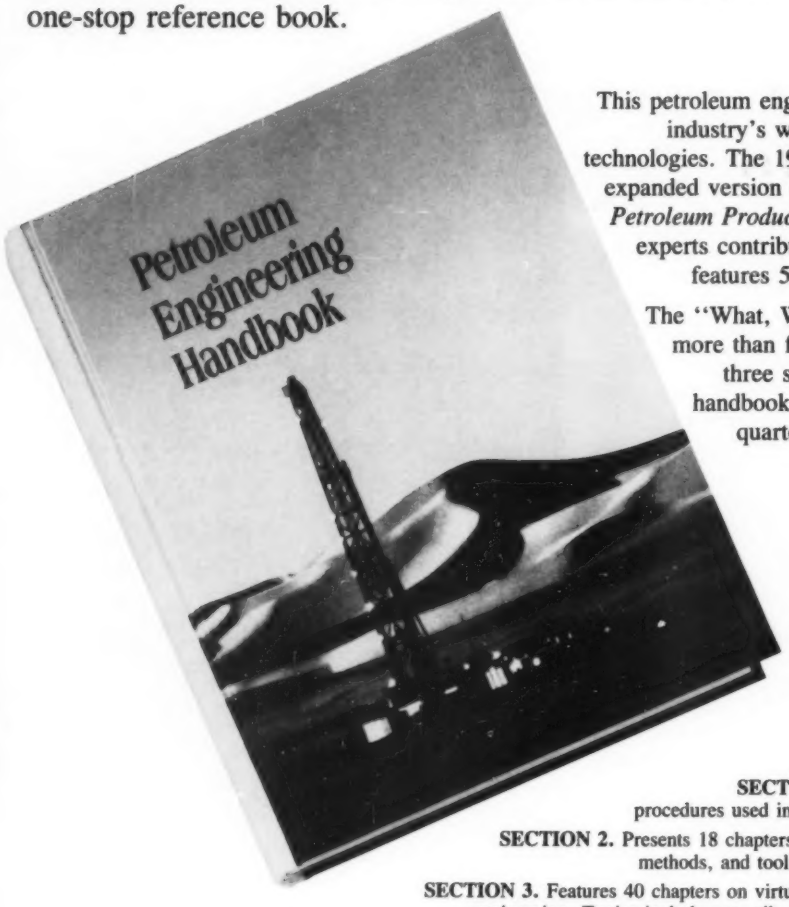

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Foreword

This **1989 SPE Index** includes references to papers published during the year in the five SPE technical journals (*Journal of Petroleum Technology, SPE Drilling Engineering, SPE Formation Evaluation, SPE Production Engineering,* and *SPE Reservoir Engineering*) as well as all papers presented at 1989 SPE-sponsored meetings and papers submitted for journal review during the year. The reader will find this comprehensive all-paper index to be a valuable guide to all papers introduced in 1989.

As in the past, index entries for journal-published papers include the journal and issue date. Papers included in the 1989 *Transactions* carry the additional designation **Transaction.** You can identify the provenance of nonjournal papers—meeting papers and unsolicited manuscripts—from the key that appears at the beginning of the index.

You can obtain any paper listed in this index through the SPE Book Order Dept. P.O. Box 833836 Richardson, TX 75083-3836 214/669-3377 telex 730989 SPEDAL fax 214/669-0135

Key to 1989 Unpublished Papers

The following codes appear in the indices to identify the source of unpublished papers presented at SPE-sponsored meetings or received for possible publication in the SPE journals during 1989.

APC—Australian Petroleum Conference, Sept. 13–15, Sydney
ATCE—64th Annual Technical Conference and Exhibition, Oct. 8–11, San Antonio
CRM—59th California Regional Meeting, April 5–7, Bakersfield
DC—SPE/IADC Drilling Conference, Feb. 28–March 3, New Orleans
ERM—Eastern Regional Meeting, Oct. 24–27, Morgantown, WV
GTS—Gas Technology Symposium, June 7–9, Dallas
HEE—Hydrocarbon Economics and Evaluation Symposium, March 9–10, Dallas
LPR—Joint Rocky Mountain Regional/Low-Permeability Reservoirs Symposium, March 6–8, Denver
MEOS—Middle East Oil Technical Conference and Exhibition, March 11–14, Bahrain
OCS—Intl. Symposium on Oilfield Chemistry, Feb. 8–10, Houston
OE—Offshore Europe, Sept. 5–8, Aberdeen
OTC—21st Annual Offshore Technology Conference, May 1–4, Houston
PCC—Petroleum Computer Conference, June 26–28, San Antonio
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UNS—Unsolicited manuscript received for review by SPE Editorial Review Committee

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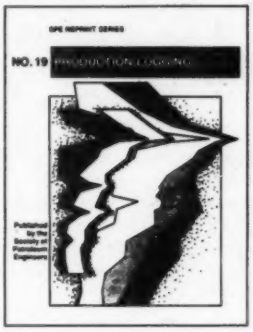

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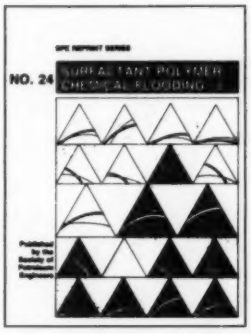

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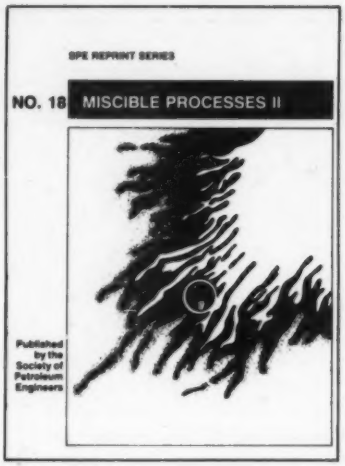

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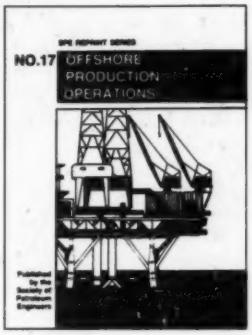

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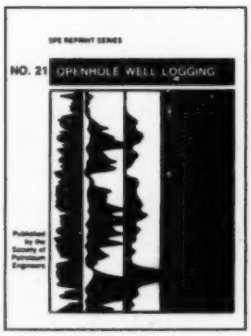

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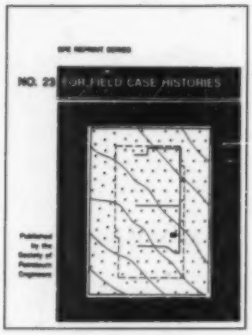

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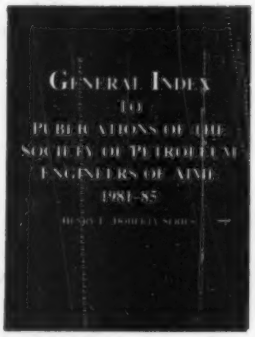

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edited by **Howard B. Bradley**

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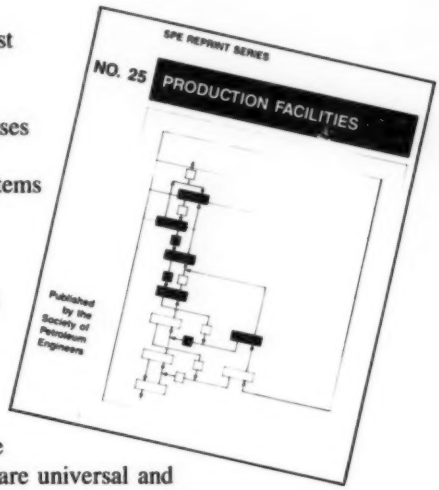

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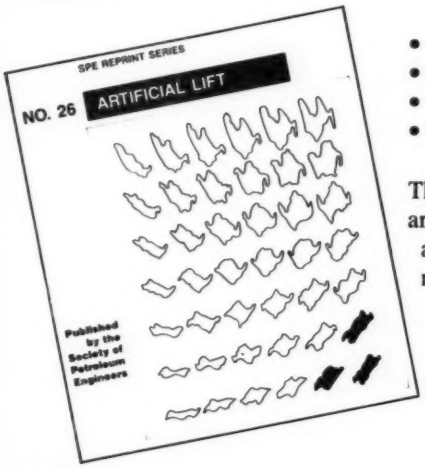

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OPTIMIZE PRODUCTION, WITH SCHLUMBERGER.

Because not all perforations are created equal.

Let's face it. You're interested in the *perforations* in your pipe, and more importantly, the *production* from them. So you want a company you can depend on to give you maximum productivity, efficiency, and safety every time you shoot your well. You can depend on Schlumberger because of continued development of innovative ways to create top quality perforations that mean better wells.

Our new *High-Shot-Density (HSD)** perforating systems, for example, can create up to 14 clean, deep holes per foot, phased precisely for optimum reservoir drainage. These guns are ideal for laminar, thinly-bedded, and rate-sensitive zones. With charges matched to your completion technique, from fracturing to gravel-packing.

And just one of our new *High-Efficiency Gun (HEG)** systems can create up to 160 evenly phased holes over a 40-foot interval in a single wireline trip. So your perforating can be completed in only *half the time.*

We've also developed *new tubing-conveyed perforating firing heads* with added safety and reliability. The new heads do not structurally support the weight of the TCP string, and they employ a double-action firing sequence for maximum safety. Moreover, they can be used in redundant combinations that give you backup assurance every time.

Your Schlumberger representatives will be glad to tell you more about each of these innovations, and the full range of gun sizes to fit your needs precisely. Most importantly, they'll explain in detail how our efficient, reliable gun systems create perforations that have no equal.

Schlumberger

Value makes the difference

* *Mark of Schlumberger*

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